



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D205-634-041
Job Sheet 179008



Part No: D205-634-041

Job Qty: 1 ea

Part Name: Replacement Skidtube with Standard Wearplates Fits LH or RH



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/11/18

Job Tracking No:

Due Date: 6/28/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG D2580 REV H SHEETS 1,2,3,8 IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD IPP Rev. O 06.02.28 Added paperwork EC IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q 10.12.01 as per chg003 DD ver:EC IPP REV:R 12.01.23 AS PER ECN11-684 VER:EC IPP REV:S 17.12.08 REMOVE GASKET AS PER INTUITIVE INFO DD VER:FJS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	6/28/18	6/28/18	0.00	0.00	Start Up Skidtubes		Mrb
110	CNC Bend Skidtubes	1 pcs	6/28/18	6/28/18	0.00	0.65	CNC Bend Skidtube		Mrb
120	Skidtubes	1 pcs	6/28/18	6/28/18	0.00	2.89	Skidtubes-2		Mrb
130	QC	1 pcs	6/28/18	6/28/18	0.00	0.00	QC5		Mrb
140	Skidtubes	1 pcs	6/28/18	6/28/18	0.00	2.89	Skidtubes-2		Mrb
150	QC	1 pcs	6/28/18	6/28/18	0.00	0.00	QC10		38 DAS
160	QC	1 pcs	6/28/18	6/28/18	0.00	0.00	QC5		9-80 38
170	HandFinish	1 pcs	6/28/18	6/28/18	0.00	1.31	HandFinish1		SA 18-09-25
180	Powdercoat	1 pcs	6/28/18	6/28/18	0.00	0.34	Powdercoat1		BL 18-07-25
190	QC	1 pcs	6/28/18	6/28/18	0.00	0.00	QC3		38 DAS
200	HandFinish	1 pcs	6/28/18	6/28/18	0.00	1.31	HandFinish4		38 DAS
210	QC	1 pcs	6/28/18	6/28/18	0.00	0.00	QC5		21 38
220	Packaging	1 pcs	6/28/18	6/28/18	0.00	0.00	Packaging3-1		9-80 9-80
225	DC	1 pcs	6/28/18	6/28/18	0.00	0.00	DC		JUL 27 2018
230	QC21-FG	1 Ea	6/28/18	6/28/18	0.00	0.00	QC21		21 JUL 27 2018

Part Op 110 - 1-Bend as per program D2580.C on CNC Bender and Folio 16 2-Cut tubes as per Dwg. D2580-3- scribe batch# in Descriptions: aft end of tube

120 - 1- Deburr ends and remove bending marks 2- Prepare tube for welding as per QSI 004

140 - 1-Weld step D2576 as per Dwg. D2580 and QSI 004 2-Grind welds on step as per Dwg D2580 8- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimension. 4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web. Deburr 5-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr 6-Drill pilot holes for Tow ring using DT8091, open to .640" and Deburr

170 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180 - START TIME: 3:30 OVEN TEMPERATURE: 300° FINISH TIME: 4:00

200 - 1-Install inserts & wearplates as per Dwg. D2580 Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291 1138787 Sikaflex expire date: 18/12 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 3-Inspect for foreign object per QSI 024 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 1138787 Sikaflex expire date: 18/12 5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: 5080995

210 - Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

WORK ORDER NON-CONFORMANCE / UPDATE



Date: _____
 Date: _____
 Date: _____

Work Order update only

W/O Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermofforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐	
---	--	--	--	--	--

Date: _____ Step #: _____ QTY Effective: _____
 Description Work Order Dev: _____

Disposition _____ Completed By: _____
 MRB (QS1042) Approval _____

1470 Kesteven Street
 Hawkesbury, ON K6A 1K7
 CANADA
 TEL.: 1 813 832-5200
 Email: sales@dartaero.com
 www.dartaero.com

Container No: S092542
Part: D205-634-041
Job No: 179008
Serial No/Batch: S092542
 Revision: H
 Inspector: _____
 Exp Date: _____
 Instructions: TC STC SH96-88 Issue 3, FAA STC SR00563NY 08/08/11, EASA S1

Root Cause		OTHER:	
Environment	No Re-verification	Cut Too Short	Misaligned
Design	Operator	Instructions Incomplete/Unclear	Fit/Function
Doc/Data	Offset/Setup	Drill Holes	Misaligned/off center
Equip/Tooling	Supplier		
Handling/Pre	Training		
Material	Use for Testing		
Internal Transport	Poor Information		
Tribal Knowledge	Rushing		
LOA	Product Improvement		
Substation	Process Improvement		
Past Expiry Date	Manufacturing Process		
Misidentified	Past Due		

QC / QA Coordinator
 Approval
 Lead hand / Supervisor
 Approval Verification

Job BOM

Part / Ref	Component Name	Quantity	Operation	Container
D2580-1	205 Bent Tube	1 Ea (1 ea)	90-Start up Operation	5084330
D2576-3	Step (Machining Detail)	1 Ea (1 ea)	140-Skidtubes	5069014
D4202-1	Spacer	20 Ea (20 ea)	140-Skidtubes	5083226(19x) 5054571 (1x)
ALS7-1032-130	Rivnut	50 Ea (50 ea)	200-HandFinish	5045668
AN3-5A	Bolt	2 Ea (2 ea)	200-HandFinish	5041106-1
AN3C4A	Bolt	50 Ea (50 ea)	200-HandFinish	11x5068642 / 39x5080186
D2594-1	Plug	16 Ea (16 ea)	200-HandFinish	5059021
D2594-3	O-Ring	16 Ea (16 ea)	200-HandFinish	5084102
D2855	Cap	1 Ea (1 ea)	200-HandFinish	5066018
D3564-11	Wearplate Aft	1 Ea (1 ea)	200-HandFinish	5080626
D3564-13	Wearpad Fwd	1 Ea (1 ea)	200-HandFinish	5045900
D3564-5	Wearplate Center	1 Ea (1 ea)	200-HandFinish	5077530
D3564-9	Wearplate Fwd	1 Ea (1 ea)	200-HandFinish	5054582
NAS1149C0332R	Washer	50 Ea (50 ea)	200-HandFinish	5056493
NAS1149D0332J	Washer	2 Ea (2 ea)	200-HandFinish	5020606-1

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2580-1	1	0	0
140-Skidtubes	D2576-3	1	34	0
	D4202-1	20	236	0
200-HandFinish	ALS7-1032-130	50	1,467	0
	AN3-5A	2	238	0
	AN3C4A	50	1,497	0
	D2594-1	16	345	0
	D2594-3	16	603	0
	D2855	1	84	0
	D3564-11	1	6	0
	D3564-13	1	5	0
	D3564-5	1	9	0
	D3564-9	1	8	0
	NAS1149C0332R	50	5,893	0
	NAS1149D0332J	2	1,829	0

Part Specifications

Specifications could not be found.

60 4680

ITEM	QTY -041	QTY -045	QTY -047	QTY -049	PART NUMBER	DESCRIPTION
1	X				D2580-041	SKIDTUBE ASSEMBLY
2		X			D2580-045	SKIDTUBE ASSEMBLY
3			X		D2580-047	SKIDTUBE ASSEMBLY
4				X	D2580-049	SKIDTUBE ASSEMBLY
20	1	1	1	1	D2500-1-190	EXTRUSION
21			16	16	D2570	BUSHING
22	1	1	1	1	D2576-3	STEP
23		4			D2579	SPACER
24	16	16	8	8	D2594-1	PLUG
25	16	16	8	8	D2594-3	O-RING
26	1	1	1	1	D2596	205 WEB
27	1	1	1	1	D2555	AFT CAP
28	1	1			D3564-5	WEARSHOE
29	1	1			D3564-9	WEARSHOE
30	1	1			D3564-11	WEARSHOE
31	1	1			D3564-13	WEARSHOE
32	20	20	24	24	D4202-1	SPACER
33			1		D4406-041	WEARPLATE ASSEMBLY
34			1		D4406-043	WEARPLATE ASSEMBLY
35				1	D5061-1	FWD WEARPLATE
36				1	D5061-3	AFT WEARPLATE
50	50	50			ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
51	50	50			AN3C4A	BOLT
52	2	2	2	2	AN3-5A	BOLT
53			8	8	AN4-45A	BOLT
54	50	50			NAS1149C0332R	WASHER (AN980C10L)
55	2	2	2	2	NAS1149D0332J	WASHER (AN980J10L)
56			8	8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

- MATERIAL: N/A
- FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
POWDER COAT (-045) GREEN SANDTEX (REF 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: NONE
- WEIGHT: D2580-041 = 33.7 lbs
D2580-045 = 33.7 lbs
D2580-047 = 45.1 lbs
D2580-049 = 32.0 lbs
- WELDING PER DART QSI 004.
- INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241A-291.
- INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED "P" (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047/-049)
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2555 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT

WITHOUT NOTICE
WORK ORDER
NO. 179008 MJS

RELEASED

2017 JUL 05 4

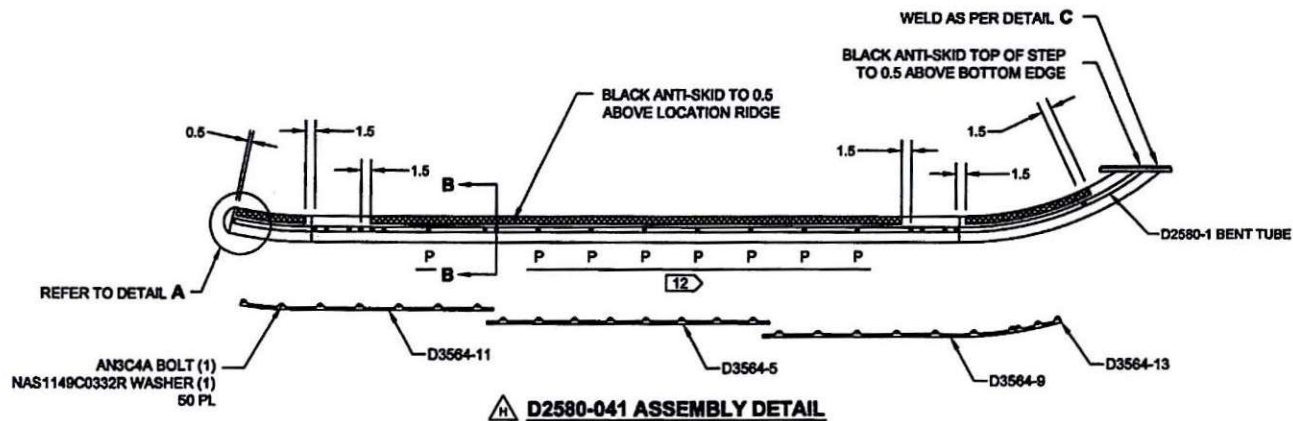
ECN17-519

H	SHEET: PL DELETE D3566-1/-5/-13 GASKETS, WEIGHTS UPDATED ACCORDINGLY. SHEETS 2 & 4 PICTORIAL UPDATE FOR REMOVAL OF GASKETS	SAD	17.06.09
G	ADDED -049, -047 WEIGHT UPDATED PER DSI 9596	AJS	14.04.09
F	INCORPORATE DEO D2580-E-1 PER PAR12-218	DC	13.06.20
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	DS		
DRAWN	SAD		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 1 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	17.06.09		

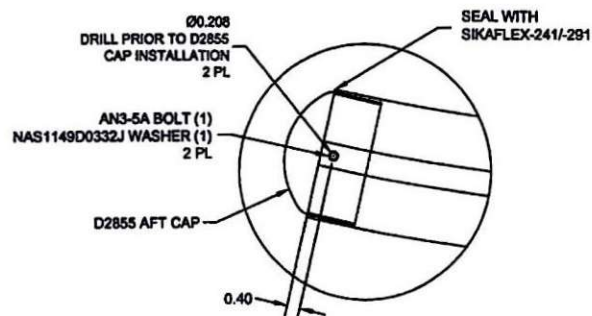
DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D2580
REV. H
SHEET 1 OF 9
SCALE NTS

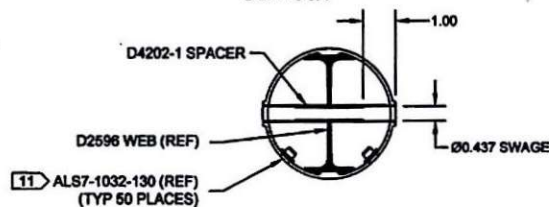
COPYRIGHT © 1996 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD



DETAIL A
SCALE 5X

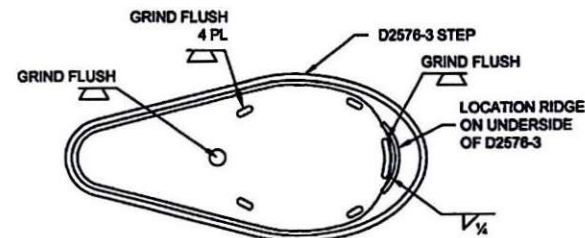


SECTION B-B
SCALE 5X



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (20 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

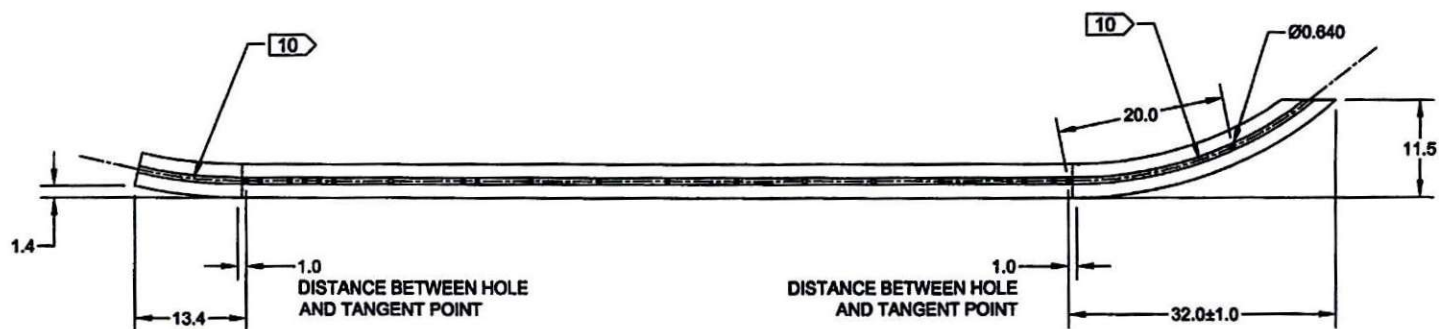
DETAIL C
SCALE 5X



RELEASED

2017 JUL 05

DESIGN	DS	DART AEROSPACE LTD	
DRAWN	SAD	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 2 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	17.06.09	COPYRIGHT © 1998 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRELIMINARY AND IS SUPPLIED ON THE UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

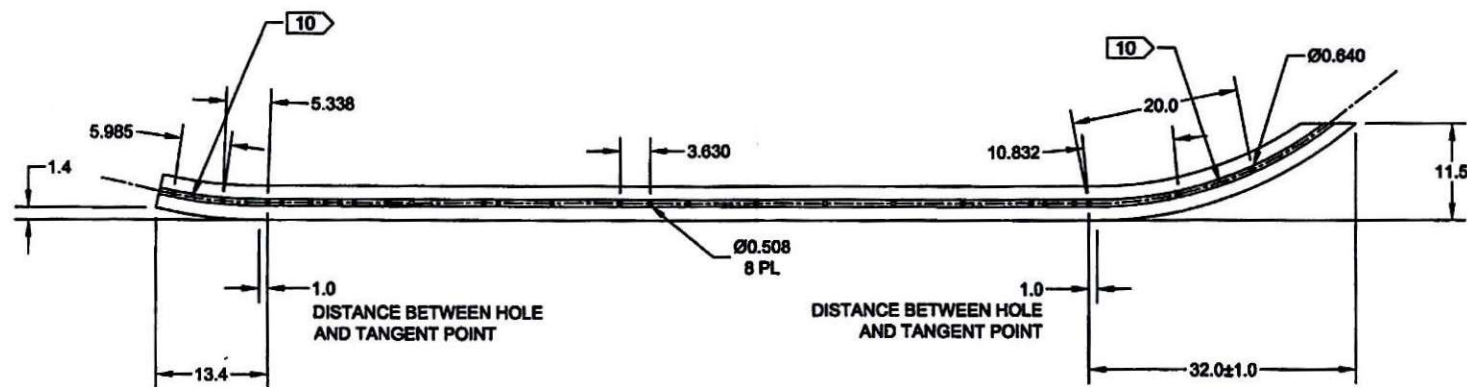


D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED

2017 JUL 05 4²

DESIGN	DS	DART AEROSPACE LTD	
DRAWN	SAD	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 3 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	17.06.09	COPYRIGHT © 1986 BY DART AEROSPACE LTD THIS DOCUMENT IS PRESENTED AND COPIED HEREIN AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED

2017 JUL 05 *q*

DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 8 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	17.06.09	COPYRIGHT © 1998 BY DART AEROSPACE LTD This document is private and confidential, and is supplied under license. It is not to be used for any other purpose without the written consent of DART AEROSPACE LTD.	